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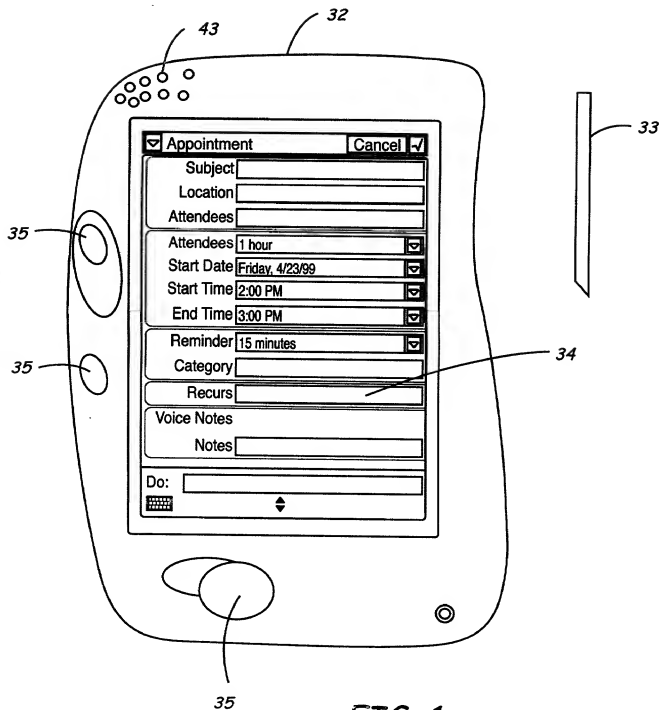


FIG. 1

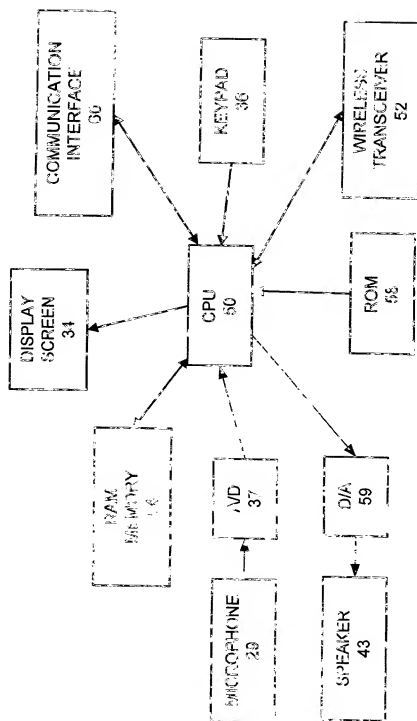
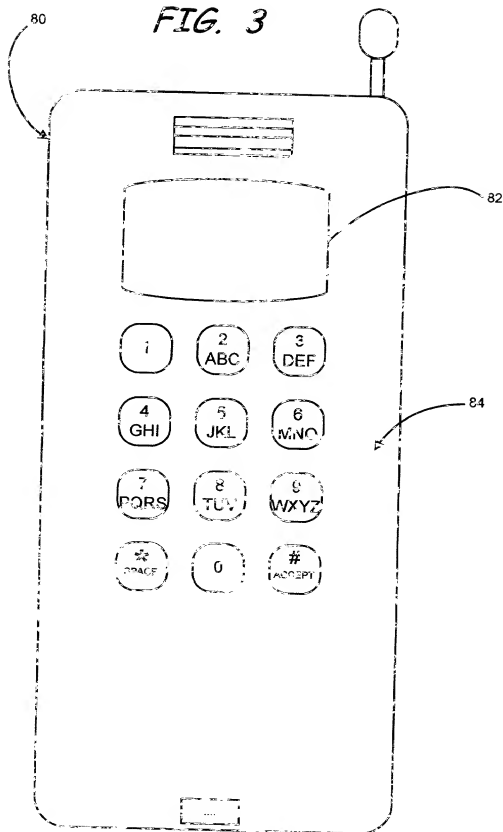


FIG. 2

FIG. 3



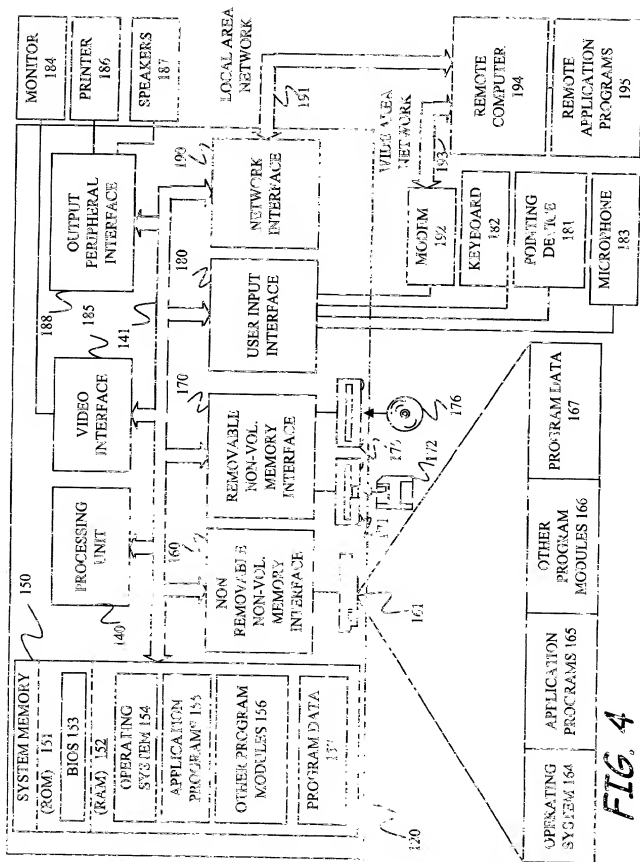
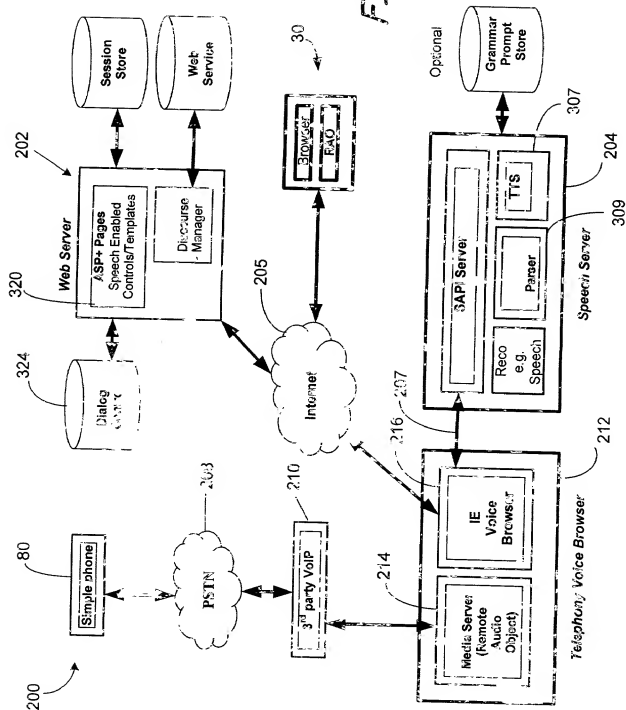


FIG. 4



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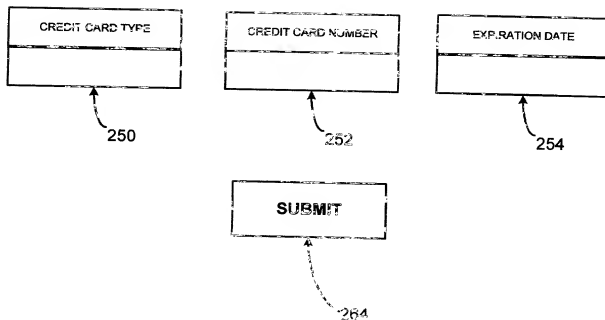


FIG. 6

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```

280 <html>
    <form id="get_card_info" method="post" action="http://payment.asp">
        <input name="card_type">
            <option value="amex">American Express</option>
            <option value="visa">Visa</option>
            <option value="ms">MasterCard</option>
        </div>
        <input type="text" name="card_num" width="30"
            onChange="handle()" />
        <input type="text" name="expiry_date" />
        <input type="submit" value="Submit" onClick="verify()" />
    </form>
</html>
<script><[[CDATA[
    function handle() {
        ...if (get_card_info.card_type.value == "amex") {
            if (get_card_info.card_num.length != 15) {
                alert ("amex should have 15 digits");
            } else
                if (get_card_info.card_num.length != 16)
                    alert ("visa and master should have 16 digits");
        }
        function verify() {
            var flag = window.confirm("submit the credit card info?");
            if (flag)
                get_card_info.submit();
        }
    }]]>
</script>
</html>

```

FIG. 7

```

270 <html>
    <form id="g_card_info" method="post" action="http://payment.asp">
      <select name="card_type" onClick="talk(g_card_types)">
        <option value="amex">American Express</option>
        <option value="visa">Visa</option>
        <option value="mc">Master</option>
      </select>
      <reco id="g_card_type" onReco = "handle()" >
        < grammar src = ". /gram#card_types" />
      </reco>
      <input type="text" name="card_num" width="30"
        onClick="talk(g_card_num)" />
      <reco id="g_card_num" onReco = "handle()" >
        < grammar src = ". /gram#digits" />
      </reco>
      <input type="text" name="expiry_date"
        onClick="talk(g_expiry_date)" />
      <reco id="g_expiry_date" >
        < grammar src = ". /gram#dates" />
      </reco>
      <input type="submit" value="Submit" onClick="verify()" />
    </form>
    <script><![CDATA[
      function talk(gobj) {
        gobj.activate();
      }
      function handle() {
        if (get_card_info.card_num != null) {
          if (get_card_info.card_type.value == "amex") {
            if (get_card_info.card_num.length != 15)
              alert ("amex should have 15 digits");
          } else
            if (get_card_info.card_num.length != 16)
              alert ("visa and master should have 16 digits");
          }
        }
      }
      function verify() {
        var flag = window.confirm("submit the credit card info?");
        if (flag) {
          get_card_info.submit();
        }
      }
    ]]>
  </script>
</html>

```

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FIG. 8



```

< body>
  < form id=" gob_card_info " method=" post" action=" http://payment.asp "
    onActivate=" _welcome() ">
    < prompt id=" _welcome " We now need your credit card </ prompt>
    < prompt id=" _p_mumble " I didn't understand you </ prompt>
    < prompt id=" _p_card_type " bargain=" true"> What credit card would you
300 use? </ prompt>
    < prompt id=" _p_card_num " bargain=" true"> Please say the number </ prompt>
    < prompt id=" _p_expiry_date " bargain=" true"> What is the expiration
    date? </ prompt>
303 < prompt id=" _g_content ">
    I have your < value select=" card_type "/> < value select=" card_num "/>
    with expiration date
    < value select=" expiry_date " />
    </ prompt>
    < prompt id=" _p_confirm "> Is this correct? </ prompt>
    < reco id=" _g_card_types " onNoReco=" _mumble(this, 2) ">
    onReco=" _handle(this, card_type) "/>
    < grammar src=" ./gram#card_types ">
    </ reco>
    < reco id=" _g_card_num " onNoReco=" _mumble(this, 1) ">
    onReco=" _handle(this, card_num) "/>
    < grammar src=" ./gram#digits "/>
    </ reco>
    < reco id=" _g_expiry_date " onNoReco=" _mumble(this, 1) ">
305 onReco=" _handle(this, expiry_date) " audio=" rao "/>
    < grammar src=" ./gram#dates "/>
    </ reco>
    < reco id=" _confirmation " onReco=" _confirmed(this) "/>
    < grammar src=" ./gram#yesn "/>
    </ reco>
    < select name=" card_type ">
    < option value=" amex"> American Express </ option>
    < option value=" visa"> Visa </ option>
    < option value=" ms"> MasterCard </ option>
    </ select>
    < input type=" text" name=" card_num " width=" 30 " />
    < input type=" text" name=" expiry_date " />
    < input type=" submit" value=" OK " />
    </ form>
    < script> <![CDATA[
      function welcome() {
        _p_welcome.active();
        _repsat = 0;
        _checkFilled();
      }
      function _mumble(qcbi, maxp_repts) {
        _gobj.deactivate();
        _p_mumble.active();
        _checkFilled();
      }
    ]]>

```

TO FIG. 9B

FIG. 9A

```

function _handle() {
    handle();
    checkFilled();
}

function checkFilled() {
    if (card_type.value == "") {
        p_card_type.activate();
        g_card_types.activate(); return;
    }
    if (card_num.value == "") {
        p_card_num.activate(); g_card_num.activate(); return;
    }
    if (expiry_date.value == "") {
        p_expiry_data.activate(); g_expiry_date.activate(); return;
    }
    p_content.activate();
    p_confirm.activate();
    confirmation.activate();
}

function confirmed(gobj) {
    if (gobj.recogRes.text == "yes")
        get_card_info.submit();
}

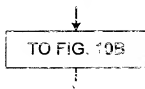
// user codes start here
function handle() {
    if (get_card_info.card_type == "amex") {
        if (get_card_info.card_num.length != 15) {
            prompt.speak ("amex should have 15 digits");
            get_card_info.card_num = "";
        }
    }
    else if (get_card_info.card_num.length != 16) {
        prompt.speak ("visa and master should have 16 digits");
        get_card_info.card_num = "";
    }
}

}}
</script>
</body>

```

FIG. 9B

**FIG. 10A**



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```

function checkfilled() {
    if (card_type.value == "") {
        p_card_type.activate(); do_field.activate(); return;
    }
    if (card_num.value == "") {
        p_card_num.activate(); do_field.activate(); return;
    }
    if (expiry_date.value == "") {
        p_expiry_data.activate(); do_field.activate(); return;
    }
    p_content.activate();
    p_confirm.activate();
    confirmation.activate();
}

function confirmed(gobj) {
    if (gobj.recogkes.text == "yes")
        get_card_info.submit(gensml());
}

// user codes start here

function handle() {
    if (field == get_card_info.card_num) {
        if (get_card_info.card_num.length != 15) {
            prompt.speak ("amex should have 15 digits");
            get_card_info.card_num = "";
        }
    } else
        if (get_card_info.card_num.length != 16) {
            prompt.speak ("visa should have 15 digits");
            get_card_info.card_num = "";
        }
    }

function gensml() {
    str = "<sm1><credit_card type="";
    str += card_type.value; str += "><number>";
    str += card_number.value; str += "</number><expire>";
    str += expiry_date.value; str +=
    "</expire></credit_card></sm1>";
    return str;
}

//
</script>
</body>

```

FIG. 10B

SAMPLE ASP+ PAGE

```

<%% Page language="Jscript" AutoEventWireup="false" Inherits="Credit.Transaction" %>
<html><head>
<!-- ASPX page for both voice-only & multimodal credit card example -->
<script>
function handle() {
    if (field == get_card_info.card_num) {
        if (get_card_info.card_num.length != 15) {
            prompt.speak ("amex should have 15 digits");
            get_card_info.card_num = "";
        }
    } else
        if (get_card_info.card_num.length != 16) {
            prompt.speak ("visa should have 15 digits");
            get_card_info.card_num = "";
        }
    }
}

function gensml() {
    str = '<sml><credit_card><card_type>';
    str += card_type.value; str += '</card_type><number>';
    str += card_number.value; str += '</number><expiry>';
    str += expiry_date.value; str += '</expiry></credit_card></sml>';
    return str;
}

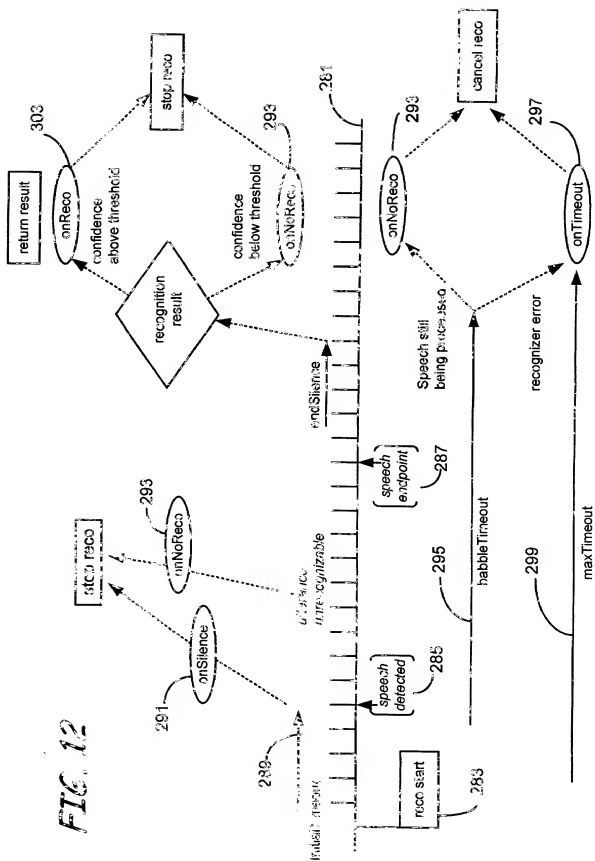
</script>
<script runat="server">
function Page_Load (obj, args) {
    if (PostBack) {
        validator = new System.Speech.SMLValidator("./CreditSDL.xml");
        dsml = validator.Evaluate(args);
        Navigate(ChoosePage(dsml));
    } else {
        // initialize fields with args
    }
}

</script>
</head>
<body>
<speech:form id="get_card_info" style="system_initiative"
    prompt=" 'prompt/getpayment' onsubmit='gensml()'"
    <speech:choice name="card_type" prompt="What credit card would you use?"
    grammar="/gram#card_type" onPhraseFinish="handle()"
    <option>American Express</option>
    <option>Visa</option>
    <option>Mastercard </option>
    </speech:choice>
    <speech:textbox name="card number" prompt="Please say the number"
    grammar="/gram#digits" onPhraseFinish="handle()">
    <speech:textbox name="expiry_date" prompt="What is the expiration date?"
    grammar="/gram#dates" onPhraseFinish="handle()"/>

</speech:form>
</body>
</html>

```

FIG. 12





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